


Food Stamps and Obesity: Irony Twist or Complex Puzzle?

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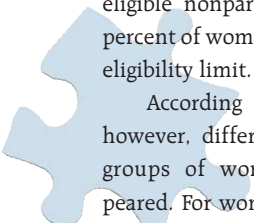
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With its roots in the Great Depression and expansion during the 1970s after the Government's declared war on poverty, the Food Stamp Program was designed to provide a nutritional safety net for low-income households while boosting demand for domestic agricultural products. Today it is the Nation's largest food assistance program, providing monthly benefits to about 24 million people at a cost of \$27 billion in 2004. The program plays a vital role in stabilizing the incomes of the poor and in promoting food consumption. However, as the major nutrition problems facing the U.S. population have shifted from too little intake to overconsumption and obesity, some have questioned whether food stamps encourage participants to eat too much.

Because food stamps are designed to serve as a first-line defense against hunger, it would be ironic if food stamps were connected to America's obesity problem. Though such a connection appeared to exist in the late 1980s and early 1990s, it does not appear to hold today. National health and nutrition data from 1988-94 show that adults who received food stamps had a greater Body Mass Index (BMI) than adults who were similarly poor but did not participate (eligible nonparticipants), by an amount that is unlikely due to chance, that is, the difference is statistically "significant" (see box, "Weighty Matters"). Weight differences were especially striking for women: 42 percent of women who participated in food stamps were obese, compared with 30 percent of eligible nonparticipating women and 22 percent of women with incomes above the eligibility limit.



According to data from 1999-2002, however, differences among these three groups of women have largely disappeared. For women, increases in BMI and obesity have accelerated more rapidly among those who did not receive food stamps than among those who did. For

men, the connection between weight status, receipt of food stamps, and income has also weakened over time.

Furthermore, these data suggest that the relationship between program participation and weight is neither uniform across sex, race, and ethnicity, nor consistent over time. Weight status is a result of eating and physical activity behaviors that interplay with individual and household economic, social, cultural, and genetic factors. Identifying how food stamp participation fits into this complex mix of behaviors and individual and household characteristics requires rich data and careful statistical modeling.

Why Might Food Stamps Cause Weight Gain?

The Food Stamp Program was designed to alleviate hunger by distributing coupons or, currently, Electronic Benefit Transfer cards, that can be used at grocery stores to purchase almost any kind of food. (Benefits cannot be used to purchase alcohol or tobacco, foods eaten in the store or hot foods prepared at the store, nonfood items, or vitamins and medicine.) The program was designed to boost food consumption and energy intake. It is an entitlement program available to all households (subject to certain work and immigration status requirements). Eligibility and benefits are based on household size, household assets, and gross and net income (gross monthly income cannot exceed 130 percent of the Federal poverty guidelines). The average food stamp benefit in 2004 was \$86 per person and \$200 per household each month.

Evidence suggests that the program has successfully increased food expenditures. Not only does the program increase food expenditures beyond what households would spend without the program, households spend more on food than they would if the same amount of benefit was given as cash. Estimates show that a dollar

in food stamps increases expenditures on food by \$0.17 to \$0.47 while a dollar of cash increases expenditures on food by about \$0.11. (A dollar of food stamps does not lead to a dollar in additional spending on food because the food stamp benefit allows cash previously spent on food to be spent on nonfood goods such as rent or child care.) This boost in food expenditures has been blamed for increasing food consumption such that program participants are more prone to obesity.

Increased resources for food spending could be used to purchase more expensive foods that were previously out of reach. If participants purchase higher priced but more healthful foods, food stamps could have a positive effect on weight. But if participants purchase higher priced, less healthful foods or simply greater quantities of the same foods, then food stamps could lead to weight gain. Studies on food stamps' effect on eating behaviors and nutrient intake are not conclusive. Food stamps do increase the availability of food energy, protein, and some micronutrients (vitamin A and iron, for example). Further, those who receive food stamps consumed more meat, added sugars, and total fats, but did not consume more fruits, vegetables, grains, and dairy products.

Does the monthly food stamp cycle, in which benefits are issued once a month, contribute to sporadic consumption of food? In the first few weeks after benefits are issued, food may be abundant for a household, and much less so near the end of the month. A household's eating patterns may mirror the cyclic availability of food. Food deprivation has been linked with binge eating when food later becomes plentiful. Further, binge eating has been linked to weight gain over time. If many food stamp recipients tend toward this behavior, the monthly cycle of food stamps may contribute to weight gain independent of the amount and form of the benefit.

Weight Gain Was Not Consistent Across Subgroups

If food stamps by themselves cause systematic weight gain, then we expect food stamp participants to be heavier than eligible nonparticipants. Simple prevalence estimates of weight status using 1988-94 data from the National Health and Nutrition Examination Survey (NHANES)

indicate that not all age, gender, and racial/ethnic groups showed a positive association between food stamps and weight.

Differences between food stamp participants and eligible nonparticipants were greatest among women, but these differences were concentrated among non-Hispanic White women. (Women account for about two-thirds of adult food

stamp recipients.) Among this subgroup, those who received food stamps in 1988-94 had greater BMI and were more likely to be obese than eligible nonparticipants. The same was true for Mexican-American women. These associations were not, however, present for non-Hispanic Black women. (The 1988-94 NHANES oversampled Mexican Americans, but not other Hispanic Americans. The sample size does not support separate estimates representative of all Hispanic Americans, only Mexican Americans.)

Men who receive food stamps tended to be lighter than their eligible nonparticipant and higher income counterparts. For both non-Hispanic Black and White men in 1988-94, those who participated in food stamps were less likely to be overweight than eligible nonparticipants and higher income men of the same ethnicity. On the other hand, Mexican-American men who received food stamps were more likely to be obese and had higher average BMI than eligible nonparticipating Mexican-American men.

The relationships between food stamp receipt and weight status for children were not as strong as they were for adults. Estimates from 1988-94 for children age 5-19 and for each sex and racial/ethnic group showed no differences between food stamp participants and eligible nonparticipants in terms of average BMI and the probabilities of being at-risk of overweight or overweight. The one exception, which contradicts the notion that food stamps cause children to be overweight, is for non-Hispanic Black boys, who were *less* likely to be overweight than eligible nonparticipating Black boys.

Thus, simple prevalence estimates showed that not all gender, age, and racial/ethnic subgroups demonstrated a positive association between food stamps and weight. In fact, differences in weight status between adult food stamp recipi-



Weighty Matters

Body Mass Index (BMI) is calculated as an individual's weight in kilograms divided by the square of his or her height in meters. For adults, numerical thresholds of BMI distinguish healthy weight from underweight, overweight, and obesity. For children and adolescents, sex-specific BMI-for-age thresholds using the 2000 Centers for Disease Control and Prevention growth charts distinguish healthy weight from underweight, at-risk of overweight, and overweight.

Adults

Underweight = BMI below 18.5

Healthy weight = BMI at or above 18.5 but below 25

Overweight = BMI at or above 25 but below 30

Obese = BMI at or above 30

Children (age 2 to 19)

Underweight = Below the 5th percentile of BMI-for-age

Healthy weight = At or above the 5th percentile but below the 85th percentile of BMI-for-age

At-risk of overweight = At or above the 85th percentile but below the 95th percentile of BMI-for-age

Overweight = At or above the 95th percentile of BMI-for-age

ents and nonparticipants were primarily driven by differences among non-Hispanic White women alone.

Today, Relationship Between Food Stamps and Weight Weakening

Perhaps participation in the Food Stamp Program does have deleterious effects for some but not all, demographic groups. If this effect were present for a subgroup, such as non-Hispanic White women, then we would expect the association between weight status and program participation to be steady over time, especially since program rules have not changed much since the 1970s. Instead, the association between weight and food stamp participation varies over time.

Overweight and obesity have been increasing in the overall U.S. population. According to the Centers for Disease Control and Prevention, 47 percent of the U.S. adult population were overweight or obese in 1976-80. By 1999-2002, over 65 percent were overweight or obese. Further, rates of obesity doubled over this period, from 15 percent to 31 percent. Are these increases worse for food stamp participants or do their trends simply mimic those of the U.S. population at large?

Among women, food stamp participants are not getting relatively heavier over time. Rather, BMI has grown more among eligible nonparticipants—and even among women with higher incomes—than for food stamp recipients. This is especially true for non-Hispanic White women. In 1976-80 and 1988-94, White women who participated in food stamps had greater BMI and were more likely to be overweight and obese than eligible nonparticipants and those with higher incomes. By 1999-2002, these differences had largely disappeared; the only exception was that White women in the moderate/high income group were still less likely to be obese than food stamp recipients. The closing of the

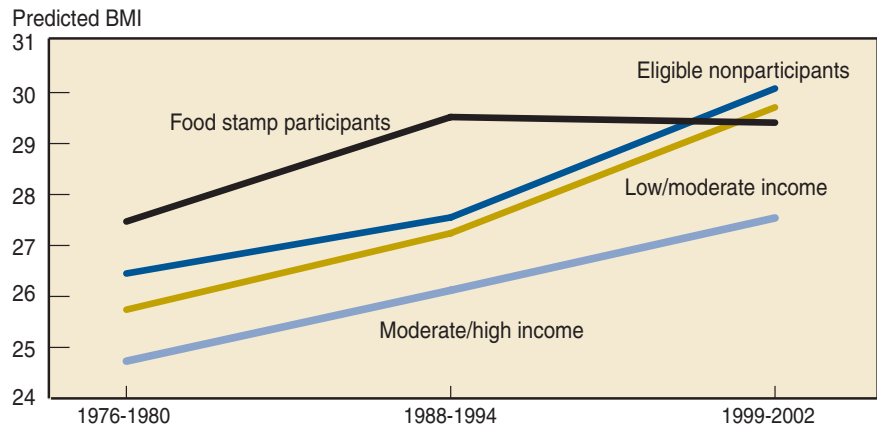
BMI gap is due to changes in weight status by nonparticipating women—the average BMI of food stamp recipients remained steady. For non-Hispanic Black women and Mexican-American women, the trends are not as striking, but the general picture is the same.

Over all three racial and ethnic groups, the probability of a woman's being overweight grew the least for food stamp

recipients over the study years. For non-Hispanic Black and White women, the likelihood of overweight grew the most for those with low/moderate income. For Mexican-American women, the probability of overweight grew the most for eligible nonparticipants and moderate/high-income women.

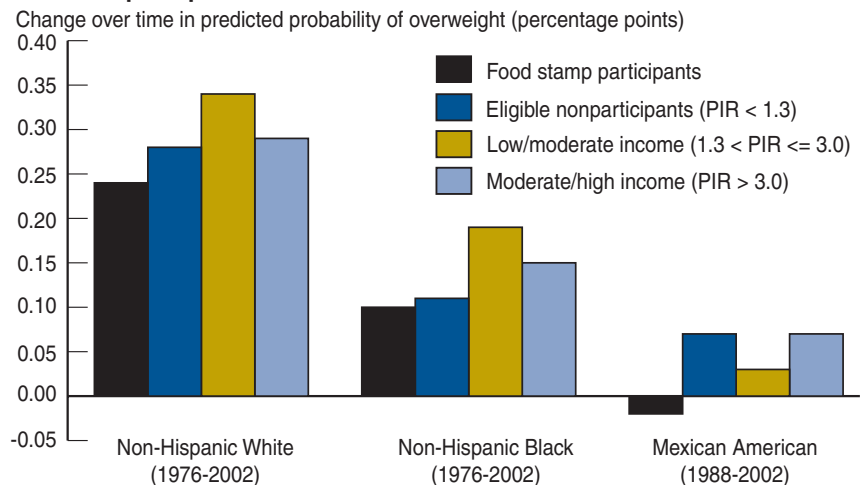
Trends for men are almost the exact opposite of those for women. Data from

For Non-Hispanic White women, the BMI of food stamp recipients has remained steady while increasing for other groups



Note: Predicted BMI calculated using regression coefficients assuming age 40.

Among women, the likelihood of becoming overweight grew the least for food stamp recipients



Notes: Probabilities calculated using logit coefficient estimates assuming age 40. PIR is the ratio of income to the Federal poverty threshold.

Source: Economic Research Service/USDA, using data from National Health and Nutrition Examination Surveys.

What Data Do We Need?

Behaviors associated with food consumption and weight gain are complex, and it is difficult to identify direct links between food stamps and excess weight. The Food Stamp Program is an entitlement program, where the law requires that benefits be provided to everyone who is eligible and takes the necessary steps to qualify. Thus, randomized experiments, where "alike" individuals are randomly assigned to the experiment group (and receive food stamps) and compared with individuals assigned to a control group (who are denied food stamps), are not legally feasible. As a result, researchers must rely on existing survey data and statistical methods to understand the effects of food stamps on weight.

A basic problem in deciphering causal links between program participation and outcomes like weight is that eligible households choose whether or not they participate. Overall, in fiscal year 2004, 56 percent of eligible persons participated in the Food Stamp Program. Participation rates vary by characteristics such as household structure and gender. Those who choose to participate may be different from those who choose not to participate, and this difference could also be related to weight status. While demographic and other characteristics can be used to help control for differences between those who choose to participate and those who do not, researchers often cannot observe all these differences. For example, strong preferences for food relative to other goods is difficult to observe, yet those people with such tastes may be more likely to participate in the program and more likely to be overweight. If such positive "self-selection" is not accounted for, estimates of the effect of food stamps on weight will be overestimated because these individuals may have gained weight without the Food Stamp Program. Researchers have used a variety of sophisticated statistical procedures to counteract selection



bias, however, none of the techniques can guarantee that selection bias has been eliminated.

We used multiple periods of data on similar subgroups to see whether food stamp-weight associations were consistent over time. Implicit in examining such trend data is that the composition of subgroups did not change (especially with respect to their propensities to become overweight or obese). In reality, it is likely that changes in economic conditions affected who is eligible and who chose to receive food stamps. Changes in other assistance programs for low-income families, such as the 1996 changes to the cash welfare program, also likely affected who chose to participate. The number of food stamp participants rose 47.4 percent from 1988 to 1994, but then began to fall—so much so that by 2000, the number of participants was below the 1988 level. This span of time included major changes in both economic conditions and welfare policy. Because the subgroups we compare do not consist of the same people over time, we do not try to draw causal conclusions about the effect of food stamps on weight.

Collecting information on weight, program participation, and other characteristics for the same set of people over time could help identify causal links. Ideally this information would be collected before, during, and after periods of food stamp participation. It will also be important to collect data over a number of years for each person to see if long-term receipt of food stamps has different impacts than short-term receipt, and to observe long-term changes in weight. Data that include multiple measures of the specific amount and types of food eaten and levels of physical activity for the same set of people over time could also be used to illuminate differences between income and program participation groups.



previous years showed that food stamp recipients were less likely to be overweight than eligible nonparticipants and higher income men. However, the most recent data show that differences in overweight status have almost entirely disappeared.

Patterns in children's weight status vary over time and by gender, race, and ethnicity. For girls age 5-19, there is little association between weight status and program participation status. Most differences that existed in previous years are not present in more recent years. Similarly, for non-Hispanic Black and White boys, few differences in weight status among food stamp participation and income groups were found in the most recent data.

For Mexican-American boys, the story is different. Data for 1999-2002 show Mexican-American boys who participated in the Food Stamp Program have higher average BMI than Mexican-American boys who are eligible nonparticipants or in the highest income group. Mexican-American boys who receive food stamps are also more

likely to be overweight than their nonparticipating counterparts, regardless of income and eligibility status.

Connection Uncertain

Overall, estimates from the latest national data show a weakening relationship between food stamp receipt and weight status. This reversal is most noticeable among women, the group for which differences between participants and nonparticipants received the most attention and for whom previous research has found the most consistent associations between food stamps and weight. For women, multi-year data show the opposite of what we would expect to find if food stamps were behind increased obesity. For men, it appears that food stamp participants are catching up weightwise with nonparticipants.

Does this new evidence exonerate food stamps in the obesity puzzle? Is there a potential problem for men who receive food stamps? The reality is that we do not know enough to conclude whether food stamps are making low-income Americans fatter. Past and current behaviors and characteristics affect an individual's weight at a given point in time. Further, eligible individuals choose whether or not

to receive food stamps and those who choose to participate may be different from those who do not.

Disentangling how food stamp participation intersects with these behaviors and characteristics and with weight is difficult. Thus far, data and statistical method limitations have prevented us from doing so conclusively (see box, "What Data Do We Need?"). Our results show that food stamps do not systematically lead to weight gain. Rather, links between food stamp participation and weight status are consistent neither across population subgroups nor over time. These findings highlight the dangers of drawing causal conclusions about food stamps and weight using data from a single point in time. **W**

This article is drawn from . . .

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The ERS Briefing Room on Diet and Health at: www.ers.usda.gov/briefing/dietandhealth/

